

Fig. 17. The same thing I try'd also by letting the Sun's Light into a dark Room through two little round holes F and ϕ made in the Window, and with two Parallel Prisms ABC and $\alpha\beta\gamma$ placed at those holes (one at each) refracting those two beams of Light to the opposite Wall of the Chamber, in such manner that the two colour'd Images PT and mn which they there painted were joyned end to end and lay in one straight Line, the red end T of the one touching the blew end m of the other. For if these two refracted beams were again by a third Prism DH placed cross to the two first, refracted Sideways, and the Spectrums thereby translated to some other part of the Wall of the Chamber, suppose the Spectrum PT to pt and the Spectrum MN to mn , these translated Spectrums pt and mn would not lie in one straight Line with their ends contiguous as before, but be broken off from one another and become Parallel, the blew end of the Image mn being by a greater Refraction translated farther from its former place MT , than the red end t of the other Image pt from the same place MT which puts the Proposition past dispute. And this happens whether the third Prism DH be placed immediately after the two first or at a great distance from them, so that the Light refracted in the two first Prisms be either white and circular, or coloured and oblong when it falls on the third.

Exper. 6. In the middle of two thin Boards I made round holes a third part of an Inch in Diameter, and in the Window-shut a much broader hole, being made to let into my darkned Chamber a large beam of the Sun's Light; I placed a Prism behind the Shut in that beam to refract it towards the opposite Wall, and close behind the Prism I fixed one of the Boards, in such manner that the middle of the refracted Light might pass through the hole made

made in it, and the rest be intercepted by the Board. Then at the distance of about twelve Feet from the first Board I fixed the other Board, in such manner that the middle of the refracted Light which came through the hole in the first Board and fell upon the opposite Wall might pass through the hole in this other Board, and the rest being intercepted by the Board might paint upon it the coloured Spectrum of the Sun. And close behind this Board I fixed another Prism to refract the Light which came through the hole. Then I returned speedily to the first Prism, and by turning it slowly to and fro about its Axis, I caused the Image which fell upon the second Board to move up and down upon that Board, that all its parts might successively pass through the hole in that Board and fall upon the Prism behind it. And in the mean time, I noted the places on the opposite Wall to which that Light after its Refraction in the second Prism did pass; and by the difference of the places I found that the Light which being most refracted in the first Prism did go to the blew end of the Image, was again more refracted in the second Prism than the Light which went to the red end of that Image, which proves as well the first Proposition as the second. And this happened whether the Axis of the two Prisms were parallel, or inclined to one another and to the Horizon in any given Angles.

Illustration. Let F be the wide hole in the Window-shut, Fig. 18. through which the Sun shines upon the first Prism ABC , and let the refracted Light fall upon the middle of the Board DE , and the middle part of that Light upon the hole G made in the middle of that Board. Let this trajected part of the Light fall again upon the middle of the second Board de and there paint such an oblong coloured Image of the Sun as was described in the third Experiment.

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